

Information needed to characterize Ag Dominated Water Bodies

(to be used in conjunction with Water Body Categorization Flow Chart 1 and completed in partnership with the entity that manages/operates the Water Bodies evaluated within this document)

A. Water Body Categorization Information

I. General

1. Entity or district name and mailing address (include website address, if applicable)

Applicant (include date of establishment):

San Luis Canal Company (SLCC) was established in 1913 as a private mutual water company that began service to lands within its boundaries. The Company continues to hold Pre-1914 Appropriative Water Rights. More information regarding SLCC can be found at: <http://www.slcc.net/>.

Managing/operating entity (if different from above):

Henry Miller Reclamation District #2131 operates and maintains the facilities that convey irrigation water or drainage water for the benefit of landowners within the district of San Luis Canal Company.

2. Manager or Contact Person (include phone and email)

Chase Hurley
General Manager
(209) 826-5112
chase@hmrdrd.net

3. Total area in the area under consideration (acres or square miles)

SLCC consists of 47,285 acres of productive farmland between the cities of Los Banos and Dos Palos in Merced County.

4. Complete the information needed in Table 1 as provided, with a separate record for each water body to be evaluated. If available, provide 1992 Inland Surface Water Plan (ISWP) information (water body name, Ag dominated water body category, and type of construction) where it is appropriate.

Table 1 Water Body Information

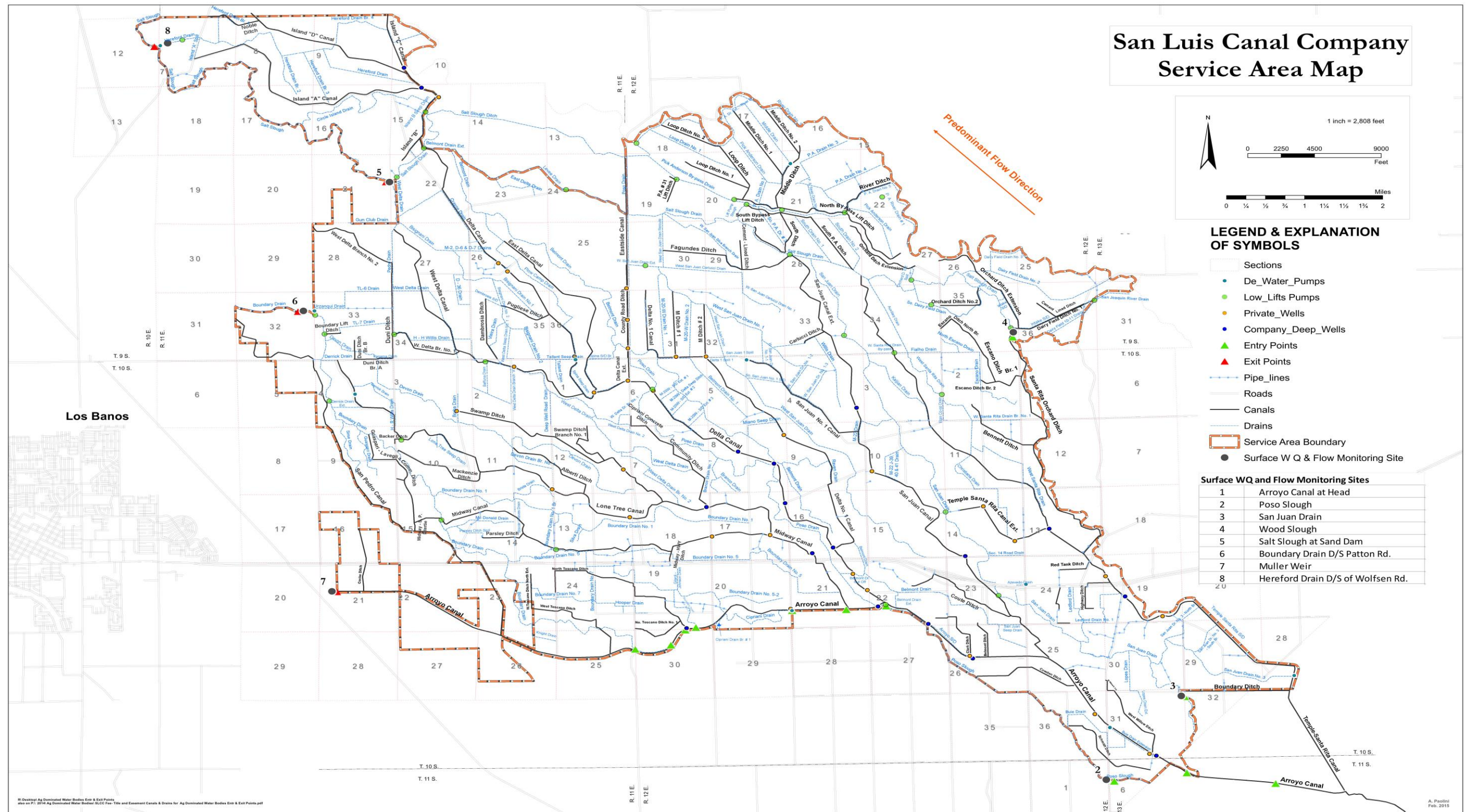
Name of Primary Water Body or System	Name of All Individual Water Bodies that Make Up the Primary Water Body System	National Hydrography Dataset (NHD) Layer	Type of Water Body (natural, modified or constructed)	Ag Dominated Water Body Category (from Flow Chart 1)	For Constructed or Modified			Length of Water Body Segment (miles)	Primary Water Type (e.g. Supply Water only, Ag return flows, subsurface tile drainage water, municipal or industrial wastewater, stormwater)	Flow Characteristics/Flow Period		Water Body Maintenance Activities and Frequency
					Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Natural	Managed	

See Appendix A for Table 1 Water Body Information. Historic construction information is stored at the SLCC's district office.

5. List sources, documents, reports or references used for making the Water Body Category (Flow Chart 1) determination provided in Table 1 for the area under consideration. Links to websites can also be provided if applicable.
- 1992 Inland Surface Water Plan—Drainage Basin 41 section tables listing all agriculturally dominated water bodies (Central Valley Water Board, 1992).
 - National Hydrography Dataset (NHD)—attributes listing “Stream/River” and “Canal/Drain” feature type. (U.S. Environmental Protection Agency and the U.S. Geological Survey, 2005).
 - Appendix B of this report provides photographs of constructed SLCC water bodies that had a “Stream/River” feature type in the NHD attribute.
 - Appendix C of this report provides photographs of hydro-modifications in canals and/or drains.
 - Historic district maps of San Luis Canal Company.
 - Historic construction and modification records from 1930s to 1960s.
6. Provide a map showing boundaries of the water bodies under consideration (USGS Quad or other map. (If Geographical Information System (GIS) shape files are available, include as an attachment)

The boundary of San Luis Canal Company is provided in Figure 1.

Figure 1 San Luis Canal Company Service Area



7. List source(s) of water for the area under consideration.

- Arroyo Canal from San Joaquin River via the San Joaquin River Exchange Contractors Exchange Contract with the Bureau of Reclamation
- Drainage from upstream districts—Poso Canal Company and Central California Irrigation District
- Local groundwater

II. Inflows and Outflows to Water Bodies

1. Provide a brief general description of overall district management.

Surface water is obtained via Arroyo Canal which receives from San Joaquin River. However, since the 1950s, water is received from upstream districts (Poso Canal Company and Central California Irrigation District) that are already a blend of supply, tail, and tile water. Water supplies continue to be blended with agricultural drainage as they move through the district until outfall to Salt Slough. Supply water may be augmented by 42 groundwater supply wells. Groundwater may be used at a higher quantity during critical dry years.

2. Provide a map(s) or schematic showing the key components of the surface water supply and drainage in the district under consideration. The figure should include inflows and outflows of the district and include (if applicable) the following:

- a. Location of surface water supply (intake) points to the district under consideration.
- b. Location of groundwater supply points in the district under consideration (This should only include wells which pump directly into canals or drains or wells used to supply water outside the land owners' control).
- c. Location of operation spills from the district under consideration.

Locations of intake points, groundwater supply points, and operation spills are displayed in Figure 1.

3. Describe and indicate on a map the predominate direction of water flow through the district.

Water predominately flows southeast to northwest within the district and is indicated in Figure 1.

B. MUN Beneficial Use Evaluation

I. Municipal and Domestic Supply (MUN) use

1. List any known State Water Rights information pertaining to the municipal and/or domestic supply use in or immediately downstream of the water bodies under consideration, even if the right has never been exercised (if applicable).

For more information on State Water Rights information and the use of database search and mapping tools, visit the following website:

http://www.swrcb.ca.gov/waterrights/water_issues/programs/ewrims/

Regional Board Staff

Application: A011688

Permit: 007262

License: 010120

The License for Diversion and Use of Water certified United States Fish and Wildlife Services (USFW) on August 19, 1970 the right to use the water of Salt Slough in Merced County for the purpose of domestic use. (Review in progress)

2. Describe other municipal and/or domestic supply use of the surface water system since November 1975 *(if applicable)*.

No known MUN use on or after November 1975.

3. Provide a map(s) showing any diversion points in or downstream of the area under consideration where water is used for municipal and/or domestic supply.

No MUN use of surface supply used in the SLCC boundary. Do not know the answer for downstream of our boundary.

C. Water Quality Monitoring Program

I. Irrigated Lands Regulatory Program (ILRP)

1. Is the area under consideration covered by water quality monitoring under the Central Valley Irrigated Lands Regulatory Program or any other monitoring program?

Yes, the area falls under the Central Valley Irrigated Lands Regulatory Program.

2. If the area under consideration is covered by the Irrigated Lands Regulatory Program, list any Management Plans previously developed or currently under development. For areas not covered by the ILRP, list any known or suspected water quality concerns including elevated background concentrations in surface or groundwater supplies. *Website links may be provided in lieu of answering this question.*

San Luis Canal Company is a member of the Westside San Joaquin River Watershed Coalition (Westside Coalition) that is covered by the Irrigated Lands Regulatory Program (ILRP). A Westside Management Plan (General Approach) was developed in October 2008. A Focused Management Plan for Poso Slough and Salt Slough was developed in September 2011. More detailed information on these management plans and reviews can be found at: http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/management_plans_reviews/coalitions/westside/index.shtml.

All monitoring sites, constituents, and frequency for the Westside Coalition are detailed in the Monitoring and Reporting Plan (MRP Plan). There are only three monitoring sites that are located in SLCC's district boundary—Salt Slough at Lander Avenue (SSALA), Salt Slough at Sand Dam (SSASD), and Poso Slough at Indiana Avenue (PSAIA). Table 2 summarizes monitoring activities for each site. Please refer to the MRP Plan for an explanation of each type of monitoring activity and constituents analyzed for each type of activity. The Westside Coalition's monitoring plans, orders, reports, and reviews can be found at: http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/monitoring_plans_reports_reviews/index.shtml.

Table 2 Summary of ILRP Monitoring Activities in SLCC District

Periods	Monitoring Site	Site Code	Irrigation (Mar-Aug)	Non-Irrigation (Sep-Feb)	Rain Event (2x per year)
Mar 2009-Feb 2011	Poso Slough at Indiana Avenue	PSAIA	Core	Core	Rain
	Salt Slough at Lander Avenue	SSALA	Core + Special	Core + Special	Rain
	Salt Slough at Sand Dam	SSASD	Special		Rain
March 2011-Feb 2012	Poso Slough at Indiana Avenue	PSAIA	Assessment	Assessment	Rain
	Salt Slough at Lander Avenue	SSALA	Assessment	Assessment	Rain
	Salt Slough at Sand Dam	SSASD	Assessment	Assessment	Rain
March 2012-Feb 2014	Poso Slough at Indiana Avenue	PSAIA	Core	Core	Rain
	Salt Slough at Lander Avenue	SSALA	Core + Special	Core + Special	Rain
	Salt Slough at Sand Dam	SSASD	Special		Rain
March 2014-Feb 2015	Poso Slough at Indiana Avenue	PSAIA	Assessment	Assessment	Rain
	Salt Slough at Lander Avenue	SSALA	Assessment	Assessment	Rain
	Salt Slough at Sand Dam	SSASD	Assessment	Assessment	Rain

II. District/Entity Monitoring

If the district or entity have a monitoring program (aside from ILRP), information for questions 1-3 may be provided. *Website links may be provided in lieu of answering these questions.*

1. Summarize existing monitoring locations with identifying number or name; parameters measured; frequency period of anticipated sampling (e.g. 2014-2016; ongoing; etc.); purpose or goal of monitoring (e.g. inlets, outlets, etc.); and the location of resulting data (if available).

The following tables (3-6) summarize current San Luis Canal Company monitoring information. Sampling sites are categorized inlets, outlets, company and private deep wells, and canals. The period of anticipated sampling is ongoing. Resulting data is stored at SLCC's district office.

2. Provide a map(s) showing the monitoring locations with identifying label (number or name) of all current and proposed water quality and/or flow monitoring points.

All monitoring locations with identifying labels are displayed in Figure 1.

3. Summarize available historic monitoring data including monitoring locations, parameters measured, number of analyses, inclusive dates of sampling, and location of data.

The following tables (7-9) summarize historic San Luis Canal Company monitoring information. Sampling sites are categorized inlets, outlets, company and private deep wells. Historic resulting data is stored at SLCC's district office.

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Table 7 Monitoring Sites, Parameters Measured, Sampling Frequency and Periods of Inlets

Inlets	Flow (ac ft)	EC (mho/cm)	B (mg/L)	Se (mg/L)	Cr (mg/L)	Mo (mg/L)	Ni (mg/L)	Zn (mg/L)
Frequency	R	Q						
Arroyo Canal		Apr 1990-Jul 2014	Apr 1990-Jul 2014	Apr 1990-Apr 1999	Apr 1990-Oct 1992	Apr 1990-Oct 1992	Apr 1990-Oct 1992	Apr 1990-Oct 1992
Concentration Range		36-2800	ND-0.82	ND-0.006	<0.01-<0.05	<0.005	<0.01-<0.05	<0.01-<0.05
Poso Slough	Jan 2005-Dec 2014	Jan 1990-Aug 2014	Jan 1990-Jul 2014	Jan 1990-Jul 2014	Jan 1990-Oct 1992	Jan 1990-Oct 1992	Jan 1990-Oct 1992	Jan 1990-Oct 1992
Concentration Range	13-5269	310-2000	0.16-0.79	ND-0.004	<0.01-<0.05	<0.005-0.008	<0.01-<0.05	<0.01-0.08
San Juan Drain	Jan 2005-Dec 2014	Jan 1990-Aug 2015	Jan 1990-Jul 2015	Jan 1990-Apr 1999	Jan 1990-Jan 1993	Jan 1990-Jan 1993	Jan 1990-Jan 1993	Jan 1990-Jan 1993
Concentration Range	10-2273	260-1600	0.07-0.49	<0.002-0.005	<0.01-<0.05	<0.005-0.011	<0.01-<0.05	<0.01-0.03
Wood Slough	Jan 2005-Dec 2014	Jan 1990-Aug 2016	Jan 1990-Jul 2016	Jan 1990-Apr 2000	Jan 1990-Oct 1992	Jan 1990-Oct 1992	Jan 1990-Oct 1992	Jan 1990-Oct 1992
Concentration Range	19-3144	290-2000	ND-0.67	ND-0.004	<0.01-<0.05	<0.005-0.006	<0.01-<0.05	<0.01-0.02

Table 8 Monitoring Sites, Parameters Measured, Sampling Frequency and Periods of Outlets

Outlets	Flow (ac ft)	EC (mho/cm)	B (mg/L)	Se (mg/L)	Cr (mg/L)	Mo (mg/L)	Ni (mg/L)	Zn (mg/L)	P (mg/L)	NO3-N (mg/L)
Frequency	R	M	M	M (Some Q)	Y (1990, 1992) and SA (1991)	SA	SA	SA	M	M
Salt Slough at Sand Dam	Jan 2007- Dec 2014	Jan 1990- Sep 2014	Jan 1990- Sep 2014	Jan 1990- Mar 2004	Sep 1990- Oct 1991	Apr 1990- Oct 1991	Apr 1990- Oct 1992	Apr 1990- Oct 1993	Jun 2001- Sep 2014	Jun 2001- Sep 2015
Concentration Range	113-5058	340-2300	0.11-0.72	ND-0.018	<0.01	<0.05	<0.01	<0.01	ND-9.0	ND-13.0
Boundary Drain D/S of Patton Rd.	Jan 2009- Dec 2014	Jan 1990- Sep 2014	Jan 1990- Sep 2014	Jan 1990- Mar 2004	Sep 1990- Oct 1992	Apr 1991- Oct 1992	Apr 1990- Oct 1993	Apr 1990- Oct 1994	Jun 2001- Sep 2014	Jun 2001- Sep 2014
Concentration Range	169-4400	430-3300	0.20-1.30	ND-0.004	<0.01	<0.005- <0.012	<0.01	<0.01- 0.03	ND-2	ND-8.40
Muller Weir	Jan 2006- Dec 2014	Jan 1990- Sep 2014	Jan 1990- Sep 2014	Jan 1990- Mar 2004 (Q)					Jun 2001- Aug 2001 (SA)	Jun 2001- Nov 2006 (SA; some Y)
Concentration Range	3-1740	91-1600	ND-1.40	ND-0.024					ND	0.6-1.3

Table 9 Monitoring Sites, Parameters Measured, Sampling Frequency and Periods of Company and Private Wells

Wells	Volume (ac ft)	EC (umho/cm)	Ca (meq/L)	Mg (meq/L)	Na (meq/L)	SAR	Adj SAR	Cl (meq/L)	CO3 + HCO3 (meq/L)	SO4 (meq/L)	B (mg/L)	NO3 -N (mg/L)	Fe (mg/L)	Mn (mg/L)	pH (unit)	Se (ug/L)
Frequency	M	M	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y
Company and Private	Jan 2013- Dec 2013	Jan 2013- Dec 2014	Aug 2014	Aug 2014	Aug 2014	Aug 2014	Aug 2014	Aug 2014	Aug 2014	Aug 2014	Aug 2014	Aug 2014	Aug 2014	Aug 2014	Aug 2014	Aug 2014
Concentration Range	1-202	475-1921	1.69- 4.93	0.89- 4.56	3.3- 14.5	1.9- 6.7	4.1- 14.6	2.8- 15.6	1.8- 5.3	1.4- 6.5	0.12- 0.75	<0.1 -0.5	<1.0	<0.2 -1.9	6.8- 8.1	0.21- 2.10

NOTE:

R Real Time

Q Quarterly

Y Yearly

M Monthly

2Y Every 2 Years

SA Semi-annual

III. Cost of Drainage Water Management Programs

1. Estimates of the cost of participating in ILRP, if applicable.

FY 2014: Approximately 46,279 acres at \$4/Acre = \$185,116

2. Estimates of the cost of ongoing monitoring programs.

Total for Coalition

Monitoring:	\$700,000
Field Coordinators:	\$110,000
Total	\$810,000

SLCC portion of monitoring

46,279 acres / 378,942 acres = 12.2%

\$810,000 * (12.2%) = \$98,820

3. Estimated cost of this report.

N/A

C. Work Cited

Central Valley Regional Water Quality Control Board (Central Valley Water Board). 1992. Consideration of Water Body Designations to Comply with Provisions of the Water Quality Control Plan for Inland Surface Waters of California (ISWP) Staff Report.

San Luis Canal Company. Historic District Maps.

San Luis Canal Company. 1930-1960. Historic Construction and Modification Records.

U.S. Environmental Protection Agency and the U.S. Geological Survey. 2005. National Hydrography Dataset Plus – NHD Plus, Edition 1.0.

APPENDIX A1 – TABLE 1 WATER BODY INFORMATION (CANALS)

Name of Primary Water Body or System	Name of All Individual Water Bodies that Make Up the Primary Water Body System	1992 (Inland Surface Water Plan (ISWP))			National Hydrography Dataset (NHD) Layer	Type of Water Body (natural, modified or constructed)	Ag Dominated Water Body Category (from Flow Chart 1)	For constructed or modified			Length of Water Body Segment (miles)	Primary Water Type (e.g. Supply Water only, Ag return flows, subsurface tile drainage water, municipal or industrial wastewater, stormwater)	Flow Characteristics/Flow Period		Water Body Maintenance Activities and Frequency
		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthenlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Natural	Managed	
Arroyo Canal System	Arroyo Canal	Arroyo Canal	C2	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag supply and drainage	8	Ag supply and return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed
	Belmont Ditch							Concretelined	1990s		2				
	Clark Ditch							Concretelined	1990s		0.3				
	Cocke Ditch							Earthlined	unknown		0.3				
	Cowden Ditch	Cowden Ditch	C2	Earthlined				Earthlined	unknown		3				
	North Toscano Ditch	Toscan Ditch North	C2	Earthlined	Canal/Ditch			Concretelined	2000s		4				
	North Toscano Ditch No. 1							Concretelined	2012		1				
	Schmidt Ditch	Schmidt Ditch	C2	Earthlined				Earthlined	unknown		1				
	West Toscano Ditch							Earthlined	unknown		1				
	West Toscano Ditch North Ext.							Earthlined	unknown		2				
	West Willow Ditch	Willow Tree Ditch West	C2	Earthlined				Earthlined	unknown		0.5				
	West Willow Ditch Extension							Earthlined	unknown		0.5				
Temple- Santa Rita Canal System	Bennett Ditch	Bennett Ditch	C2	Earthlined		Constructed	C1	Concretelined	1990s	Ag supply and drainage	0.3	Ag supply and return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed
	Boundary Ditch							Concretelined	2000s		1				
	Cement Lined Ditch							Concretelined	1950s		1				
	Dairy Field Ditch No. 1				Canal/Ditch			Earthlined	unknown		1				
	Escano Ditch Br. 1	Escano Ditch Branch 1	C2	Earthlined				Earthlined	unknown		1				
	Escano Ditch Br. 2							Earthlined	unknown		0.2				
	Escano Ditch North Br.							Earthlined	unknown		1				
	Highway Ditch							Concretelined	1950s		1				
	Orchard Ditch Extension	Orchard Ditch Extension	C2	Earthlined	Canal/Ditch			Concretelined	1990s		3				
	Orchard Ditch No.2	Orchard Ditch No.3	C2	Earthlined				Earthlined	unknown		1				
	Red Tank Ditch	Red Tank	C2	Earthlined				Earthlined	1940s		1				
	Santa Rita Orchard Ditch				Stream/River, Canal/Ditch			Earthlined	unknown		4				
	Temple Santa Rita Canal Ext.	Temple Santa Rita Extension	C2	Earthlined				Concretelined	1990s		1				
	Temple Santa Rita Canal	Temple Santa Rita	C2	Earthlined	Canal/Ditch			Earthlined	unknown		12				
Pick Anderson System	Loop Ditch					Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed
	Loop Ditch No. 1							Earthlined	unknown		1				
	Loop Ditch No. 2							Earthlined	unknown		1				
	Middle Ditch							Earthlined	unknown		1				
	Middle Ditch No. 1							Earthlined	unknown		1				
	Middle Ditch No. 2							Earthlined	unknown		1				
	North Bypass Lift Ditch							Earthlined	unknown		3				
	P.A. # 31 Lift Ditch							Earthlined	unknown		0.4				
	River Ditch							Earthlined	unknown		1				
	South Bypass Lift Ditch							Earthlined	unknown		1				
	South Ditch							Earthlined	unknown		1				
	South P. A. Ditch							Earthlined	unknown		1				
	Carlucci Ditch				Canal/Ditch			Earthlined	unknown		0.3				
	Cement - Lined Ditch							Concretelined	2004		0.4				
San Juan Canal System	Coute Ditch	Coute Ditch	C2	Earthlined		Constructed	C1	Earthlined	unknown	Ag supply and drainage	2	Ag supply and return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed
	Fagundes Ditch							Earthlined	unknown		1				
	San Juan No. 1 Canal	San Juan No. 1	C2	Earthlined				Earthlined	unknown		2				
	San Juan Canal	San Juan	C2	Earthlined	Canal/Ditch			Earthlined	unknown		6				
	San Juan Canal Extension	San Juan Extension	C2	Earthlined	Canal/Ditch			Earthlined	unknown		2				
	Delta No. 1 Canal	Delta No. 1	C2	Earthlined				Earthlined	unknown		6				
Delta No. 1 Canal System	M Ditch # 1					Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed
	M Ditch # 2							Earthlined	unknown		1				
Delta Canal System	Boundary Lift Ditch					Constructed	C1	Concretelined	1960s	Ag supply and drainage	0.2	Ag supply and return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed
	County Road Ditch	County Road Ditch	C2	Earthlined	Canal/Ditch			Earthlined	2012		1				
	Dambrosia Ditch	Dambrosia	C2	Earthlined				Earthlined	unknown		1				
	Delta Canal	Delta Canal	C2	Earthlined, Concrete Lined	Canal/Ditch			Earthlined	unknown		10				
	Delta Canal Extension				Canal/Ditch?			Concretelined	2012		0.3				
	Duni Ditch				Canal/Ditch			Concretelined	1990s		1				
	Duni Ditch Branch A				Canal/Ditch			Concretelined	2004		1				
	Duni Ditch Branch B							Earthlined	unknown		0.3				
	East Delta Canal	East Delta Canal	C2	Earthlined				Earthlined	unknown		3				
	Eastside Canal							Concretelined	2012		3				
	Noble Ditch							Earthlined	unknown		1				
	Pugliese Ditch							Earthlined	unknown		1				
	West Delta Branch No. 1	West Delta Canal Branch 1	C2	Earthlined	Canal/Ditch			Concretelined	1990s		1				
	West Delta Branch No. 2	West Delta Canal Branch 2	C2	Earthlined	Canal/Ditch			Earthlined	unknown		1				
	West Delta Canal	West Delta Canal	C2	Earthlined	Canal/Ditch			Earthlined	unknown		4				
Island Canal System	Island "A" Canal	Island Canal "A"	C2	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag supply and drainage	4	Ag supply and return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed
	Island "B" Canal	Island Canal "B"	C2	Earthlined				Earthlined	unknown		1.1				
	Island "C" Canal	Island Canal "C"	C2	Earthlined	Canal/Ditch			Concretelined	1990s		1.2				
	Island "D" Canal	Island Canal "D"	C2	Earthlined				Earthlined	unknown		2				
								Earthlined	unknown		1				
Midway & San Pedro Canal System	Alberti Ditch				Stream/River	Constructed	C1	Earthlined	unknown	Ag supply and drainage	0.1	Ag supply and return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed
	Backer Ditch							Earthlined	unknown		0.3				
	Cipriani Concrete - Lined Ditch							Concretelined	1960s		2				
	Community Ditch	Community Ditch	C2	Earthlined				Earthlined	unknown		1				
	Guaspari - Laveglia Comm. Ditch				Canal/Ditch			Earthlined	unknown		8				
	Lone Tree Canal	Lone Tree Canal	C2	Earthlined	Canal/Ditch			Earthlined	unknown		0.4				
	Lone Tree Spur				Canal/Ditch			Earthlined	unknown		1				
	Mackenzie Ditch	Mackenzie	C2	Earthlined				Earthlined	unknown		0.2				
	Midway - Highway Ditch							Earthlined	unknown		0.1				
	Midway - San Pedro Intertie							Concretelined	1990s		7				
	Midway Canal	Midway Canal	C2	Earthlined	Canal/Ditch			Earthlined	unknown		1				
	Parsley Ditch							Earthlined	unknown		7				
	San Pedro Canal	San Pedro Canal	C2	Earthlined	Canal/Ditch			Earthlined	unknown		1				
	Swamp Ditch	MidwaySwamp Ditch?	C2	Earthlined	Canal/Ditch			Earthlined	unknown		3				
	Swamp Ditch Branch No. 1	Midway Swamp Ditch Branch 1?	C2	Earthlined				Earthlined	unknown		1				

APPENDIX A2 – TABLE 1 WATER BODY INFORMATION (DRAINS)

Name of Primary Water Body or System	Name of All Individual Water Bodies that Make Up the Primary Water Body System	1992 (Inland Surface Water Plan (ISWP))			National Hydrography Dataset (NHD) Layer	Type of Water Body (natural, modified or constructed)	Ag Dominated Water Body Category (from Flow Chart 1)	For constructed or modified			Length of Water Body Segment (miles)	Primary Water Type (e.g. Supply Water only, Ag return flows, subsurface tile drainage water, municipal or industrial wastewater, stormwater)	Flow Characteristics/Flow Period		Water Body Maintenance Activities and Frequency								
		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Natural	Managed									
Belmont Drain	Belmont Drain	Belmont Drain	C1	Earthlined	Stream/River	Constructed	C1	Earthlined	unknown	Ag drainage	12	Ag return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed								
	Belmont Drain Extension	Belmont Drain Extension	C1	Earthlined	Stream/River, Canal/Ditch?			Earthlined	unknown		0.3												
	Belmont Drain No. 1	Belmont Drain No.1	C1	Earthlined				Earthlined	unknown		2												
	M-20W - Delta Seep Ditch	M-20W Delta Seep D 1, 2, 3	C1	Earthlined				Earthlined	unknown		0.7												
	M-20W - Delta Seep Ditch Ext. # 1							Earthlined	unknown		0.2												
	M-20W - Delta Seep Ditch Ext. # 2							Earthlined	unknown		0.3												
	M-20W - Delta Seep Ditch Ext. # 3							Earthlined	unknown		0.3												
	Miano Seep Drain	Miano Seep Drain	C1	Earthlined				Earthlined	unknown		0.8												
	Plow Camp Drain	Plow Camp Drain	C1	Earthlined				Earthlined	unknown		4												
	Raven Drain	Raven Drain	C1	Earthlined				Earthlined	unknown		1												
	San Juan Seep Drain	San Juan Seep Drain	C1	Earthlined				Earthlined	unknown		0.4												
	Spina S/D Br.							Earthlined	unknown		0.3												
	Spina Seep Drain	Spina Drain	C1	Earthlined				Earthlined	unknown		1												
	Tallant Drain							Earthlined	unknown		0.6												
	Tallant Seep Drain	Tallent Seep Drain	C1	Earthlined				Earthlined	unknown		0.3												
Boundary Drain	Boundary Drain	Boundary Drain	C1	Earthlined	Stream/River	Constructed	C1	Earthlined	unknown	Ag drainage	10	Ag return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed								
	Derrick Drain	Derrick Drain	C1	Earthlined	Canal/Ditch			Earthlined	unknown		0.8												
	Derrick Drain Ext.	Derrick Drain Extension	C1	Earthlined				Earthlined	unknown		0.8												
	Guaspari Drain	Guasperi Drain	C1	Earthlined				Earthlined	unknown		0.8												
	H - R Willis Drain							Earthlined	unknown		0.3												
	Knight Drain	Knight Drain	C1	Earthlined				Earthlined	unknown		0.5												
	Mc Donald Drain	McDonald Drain	C1	Earthlined				Earthlined	unknown		0.9												
	Parsley Ditch Spill							Earthlined	unknown		0.4												
	Sirse Drain	Sirsi Drain	C1	Earthlined				Earthlined	unknown		0.9												
	TL-6 Drain	TL-6 & TL-7 Drain	C1	Earthlined				Earthlined	unknown		0.8												
	Urzanqui Drain	Urzonqui Drain	C1	Earthlined				Earthlined	unknown		0.4												
	Boundary Drain No. 1	Boundary Drain No. 1	Boundary Drain 1	C1	Earthlined			Stream/River	Constructed		C1					Earthlined	unknown	Ag drainage	5	Ag return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed
		Boundary Drain No. 1 Br.														Earthlined	unknown		0.3				
		Boxcar / Neves Drain	Boxcar/ Neves Drain	C1	Earthlined											Earthlined	unknown		0.2				
		Brista Drain	Bristo Drain	C1	Earthlined											Earthlined	unknown		0.8				
Silva Drain						Earthlined	unknown	0.2															
Boundary Drain No. 5	Boundary Drain No. 5	Boundary Drain 5	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	5	Ag return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed								
	Boundary Drain No. 5-2	Boundary Drain 5-2			Stream/River			Earthlined	unknown		3												
	Boundary Drain No. 5-2-2	Boundary Drain 5-2-2			Stream/River			Earthlined	unknown		1												
	Cipriani Drain	Cipriani Drain			Canal/Ditch			Earthlined	unknown		1												
	Cipriani Drain Br. # 1	Cipriani Drain Br. 1						Earthlined	unknown		0.3												
	Gilardi - Johnson Drain	Gilardi - Johnson Drain						Earthlined	unknown		0.3												
Boundary Drain No. 7	Boundary Drain No. 7	Boundary Drain 7	C1	Earthlined	Stream/River	Constructed	C1	Earthlined	unknown	Ag drainage	2	Ag return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed								
	Hooper Drain	Hooper Drain			Stream/River			Earthlined	unknown		0.4												
Circle Island Drain	Circle Island Drain	Circle Island Drain	C1	Earthlined	Stream/River	Constructed	C1	Earthlined	unknown	Ag drainage	2	Ag return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed								
Devon Drain	Borba Drain	Borba Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.4	Ag return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed								
	Devon Drain	Devon Drain			Stream/River			Earthlined	unknown		6												
	Devon Drain Br. No. 1	Devon Drain Branch No. 1						Earthlined	unknown		0.7												
	Lone Tree Seep Drain	Lone Tree Seep Drain						Earthlined	unknown		0.6												
	Panama Ditch	Panama Drain						Earthlined	unknown		0.2												
Hereford Drain	Hereford Drain		C1	Earthlined	Stream/River	Constructed	C1	Earthlined	unknown	Ag drainage	4	Ag return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed								
	Hereford Drain Br. 1	Hereford Drain Br. 1 & 2						Earthlined	unknown		0.7												
	Hereford Drain Br. 2							Earthlined	unknown		0.6												
	Hereford Drain Br. 3							Earthlined	unknown		0.8												
	Hereford Drain Br. 4	Hereford Drain Br. 4	C1	Earthlined				Earthlined	unknown		2												
	Island "A" Spill			Earthlined	unknown			0.3															
Pick Anderson By-pass Drain	Lift Pump Slough	Lift Pump Slough	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.3	Ag return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed								
	Loop Drain No. 1							Earthlined	unknown		1												
	Middle Drain	Middle Drain	C1	Earthlined				Earthlined	unknown		2												
	P. A. Drain Ext., - River Br.	Pick Anderson Dr Ex. Riv B	C1	Earthlined				Earthlined	unknown		0.6												
	P. A. Drain No.1	Pick Anderson 1, 3, 4, 5	C1	Earthlined				Earthlined	unknown		0.6												
	P.A. Drain No. 3							Earthlined	unknown		1												
	P.A. Drain No. 4							Earthlined	unknown		0.8												
	P. A. Drain No. 5							Earthlined	unknown		0.7												
	P. A. River Drain # 1	Pick Anderson River Dr 1	C1	Earthlined				Earthlined	unknown		1												
	P. A. Seep Drain No. 2	Pick Anderson See Dr 2	C1	Earthlined				Earthlined	unknown		0.8												
	Pick Anderson By-pass Drain	Pick Anderson By-pass Dr	C1	Earthlined	Canal/Ditch			Earthlined	unknown		3												
	Pick Anderson Drain	Pick Anderson Drain	C1	Earthlined	Canal/Ditch			Earthlined	unknown		5												
	River Drain No. 3							Earthlined	unknown		1												
	South Drain No. 1	South Drain No. 1 &2	C1	Earthlined				Earthlined	unknown		0.8												
	South Drain No. 2							Earthlined	unknown		0.9												
South P.A. Drain # 3					Earthlined	unknown	0.0																
Poso Drain	Arroyo S/D					Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed								
	Belmont Drain Cut Off				Stream/River, Canal/Ditch	Constructed	C1	Earthlined	unknown		0.3												
	Belmont Drain Ext.	Belmont Drain Extension	C1	Earthlined		Constructed	C1	Earthlined	unknown		0.3												
	Branco Drain	Branco Drain	C1	Earthlined				Earthlined	unknown		0.7												
	Branco Drain No. 1	Branco Drain 1	C1	Earthlined				Earthlined	unknown		0.3												
	Buie Drain	Buie Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown		1												
	Buie Drain Extension					Constructed	C1	Earthlined	unknown		0.9												
	Poso Drain				Canal/Ditch	Constructed	C1	Earthlined	unknown		10												
	Poso Slough				Stream/River	Modified	M1	Earthlined	unknown		4												
	Poso Slough Drain Re-route					Constructed	C1	Earthlined	unknown		0.4												

Name of Primary Water Body or System	Name of All Individual Water Bodies that Make Up the Primary Water Body System	1992 (Inland Surface Water Plan (ISWP)			National Hydrography Dataset (NHD) Layer	Type of Water Body (natural, modified or constructed)	Ag Dominated Water Body Category (from Flow Chart 1)	For constructed or modified			Length of Water Body Segment (miles)	Primary Water Type (e.g. Supply Water only, Ag return flows, subsurface tile drainage water, municipal or industrial wastewater, stormwater)	Flow Characteristics/Flow Period		Water Body Maintenance Activities and Frequency
		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Natural	Managed	
Salt Slough	Dairy Field 10-11 Drain					Constructed	C1	Earthlined	unknown	Ag drainage	0.5	Ag return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed
	Dairy Field Drain No. 2					Constructed	C1	Earthlined	unknown		2				
	Dairy Field Drain No. 3					Constructed	C1	Earthlined	unknown		0.8				
	East Delta Drain				Canal/Ditch	Constructed	C1	Earthlined	unknown		0.7				
	Intake S/D					Constructed	C1	Earthlined	unknown		2				
	Island B Seep Drain	Island B Seep Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown		1				
	Levee Drain	Levee Drain	C1	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown		3				
	Orchard Ditch Ext. Spill					Constructed	C1	Earthlined	unknown		0.3				
	Salt Slough	Salt Slough	B1	Earthlined	Stream/River	Modified	M1	Earthlined	unknown		7				
	Salt Slough Ditch					Constructed	C1	Earthlined	unknown		3				
	Salt Slough Drain	Salt Slough Drain	C1	Earthlined	Stream/River, Canal/Ditch	Constructed	C1	Earthlined	unknown		8				
	San Joaquin River Drain	San Joaquin River Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown		0.7				
	South Dairy Field Drain					Constructed	C1	Earthlined	unknown		2				
San Juan Drain	Azevedo Drain	Azevedo Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.3	Ag return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed
	Kaljian Drain	Kaljian Drain	C1	Earthlined				Earthlined	unknown		1				
	Ledford Drain	Ledford Drain	C1	Earthlined				Earthlined	unknown		1				
	Ledford Drain No. 1	Ledford Drain 1 & 1-1	C1	Earthlined				Earthlined	unknown		1				
	Lopes Drain	Lopes Drain	C1	Earthlined				Earthlined	unknown		0.7				
	Lopes Drain Ext.	Lopes Drain Ext.	C1	Earthlined				Earthlined	unknown		0.4				
	M-22 Drain	M-22 Drain	C1	Earthlined				Earthlined	unknown		0.8				
	M-22 J-39, 40 & 41 Drain							Earthlined	unknown		0.8				
	San Juan Drain				Stream/River			Earthlined	unknown		10				
	San Juan Drain No. 3	San Juan Drain No. 3	C1	Earthlined	Stream/River			Earthlined	unknown		2				
	San Juan Drain No. 3 - North Br.							Earthlined	unknown		0.7				
	San Juan Drain No. 3 - South Br.	San Juan Drain 3-N & S	C1	Earthlined				Earthlined	unknown		0.5				
	Sec. 14 Road Drain							Earthlined	unknown		0.5				
	Temple Santa Rita S/D							Earthlined	unknown		0.9				
West Delta Drain	Baffuna Drain					Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed
	Bisignani Drain					Constructed	C1	Earthlined	unknown		0.8				
	Bisignani Drain No. 2	Bisignani Drain 1 & 2	C1	Earthlined		Constructed	C1	Earthlined	unknown		1				
	Bisignani Drain No.1					Constructed	C1	Earthlined	unknown		2				
	Crayne Drain	Crayne Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown		2				
	D - 36 Drain	D-36 Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown		0.7				
	Dambrosia S/D					Constructed	C1	Earthlined	unknown		0.2				
	Deep Well Road Drain	Deep Well Road Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown		0.5				
	Gun Club Drain	Gun Club Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown		0.6				
	H - H Willis Drain				Canal/Ditch	Constructed	C1	Earthlined	unknown		1				
	M-2, D-6 & D-7 Drains	M-2 Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown		0.8				
	Pedro Drain	Pedro Drain	C1	Earthlined	Stream/River, Canal/Ditch	Constructed	C1	Earthlined	unknown		2				
	TL-7 Drain	TL-6 & TL-7 Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown		0.8				
	Vieira Drain	Viera Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown		0.7				
	West Delta Drain	West Delta Drain	C1	Earthlined		Modified	M1	Earthlined	unknown		6				
	West Delta Drain Br. No. 1					Constructed	C1	Earthlined	unknown		0.3				
	West Delta Drain Br. No. 2					Constructed	C1	Earthlined	unknown		1				
	West Delta Drain Branch "A"	West Delta Drain Br. A	C1	Earthlined		Constructed	C1	Earthlined	unknown		0.5				
	West Delta Drain No. 2	West Delta Drain No. 2	C1	Earthlined		Constructed	C1	Earthlined	unknown		0.6				
	West Delta Seep Drain No. 1	West Delta Seep Drain 1	C1	Earthlined		Constructed	C1	Earthlined	unknown		0.5				
West San Juan Drain	Delta 1 Spill 1					Constructed	C1	Earthlined	unknown	Ag drainage	0.2	Ag return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed
	M-20-W Drain No. 1	M-20 W Drain No. 1 & 2	C1	Earthlined				Earthlined	unknown		1				
	M-20-W Drain No. 2							Earthlined	unknown		1				
	North San Juan No. 1 S/D							Earthlined	unknown		1				
	San Juan 1 Spill							Earthlined	unknown		0.2				
	South San Juan No. 1 S/D							Earthlined	unknown		1				
	W. San Juan Silva Branch Drain				Canal/Ditch			Earthlined	unknown		1				
	West San Juan Carlucci Drain							Earthlined	unknown		1				
	West San Juan Carlucci Drain No. 1							Earthlined	unknown		0.9				
	West San Juan Drain	West San Juan Drain	C1	Earthlined	Stream/River, Canal/Ditch			Earthlined	unknown		6				
	West San Juan Drain Ext.	West San Juan Drain Ext.	C1	Earthlined	Canal/Ditch			Earthlined	unknown		0.4				
	West San Juan Drain No. 1	West San Juan Drain 1	C1	Earthlined	Canal/Ditch			Earthlined	unknown		2				
	West San Juan Drain No. 1-1							Earthlined	unknown		0.3				
	West San Juan Drain No. 1-2							Earthlined	unknown		0.4				
	West San Juan Drain No. 1-3				Canal/Ditch			Earthlined	unknown		0.5				
	West San Juan Drain Reroute							Earthlined	unknown		0.8				
	Willis Drain	Willis Drain	C1	Earthlined	Canal/Ditch			Earthlined	unknown		2				
West Santa Rita Drain	Auxiliary Drain	Auxiliary Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No natural flow	Feb. - Oct. varied flow	periodic dredging as needed
	Christiana Drain	Christiana Drain Br. 1	C1	Earthlined	Canal/Ditch			Earthlined	unknown		2				
	Elgin Co-op Drain	Elgin Co-op Drain	C1	Earthlined				Earthlined	unknown		0.4				
	Escano Drain	Escano Drain	C1	Earthlined				Earthlined	unknown		2				
	Fialho Drain	Fialho Drain	C1	Earthlined				Earthlined	unknown		0.4				
	North Escano Drain							Earthlined	unknown		0.4				
	West Santa Rita Drain	West Santa Rita Drain	C1	Earthlined	Stream/River, Canal/Ditch			Earthlined	unknown		4				
	West Santa Rita Drain Branch No. 1							Earthlined	unknown		0.6				
	West Santa Rita Drain By-pass	West Santa Rita Dr By-Pass	C1	Earthlined				Earthlined	unknown		0.5				

APPENDIX B – PHOTOGRAPHS OF CONSTRUCTED WATER BODIES WITH “STREAM/RIVER’ IN NHD ATTRIBUTE

Belmont Drain



Upstream



Downstream

Devon Drain



Upstream



Downstream

Boundary Drain No. 1



Upstream



Downstream

Boundary Drain No. 5



Upstream



Downstream

Boundary Drain No. 5-2



Upstream



Downstream

Boundary Drain No. 7



Upstream



Downstream

Hooper Drain



Upstream



Downstream

Boundary Drain



Upstream-Pipe from Central California Irrigation District

Belmont Drain Cut-off



Upstream



Downstream

Poso Drain



Upstream



Downstream

San Juan Drain No. 3



Upstream



Downstream

West Santa Rita Drain



Upstream



Downstream

Santa Rita Orchard Ditch



Upstream



Downstream

San Juan Drain



Upstream



Downstream

Salt Slough Drain



Upstream



Downstream

West San Juan Drain



Upstream



Downstream

Belmont Drain Extension



Upstream



Downstream

Circle Island Drain



Upstream



Downstream

Pedro Drain



Upstream



Downstream

Panama Canal



Upstream



Downstream

Alberti Ditch



Upstream



Downstream

APPENDIX C—PHOTOGRAPHS OF HYDRO-MODIFICATIONS IN WATER BODIES

Arroyo Canal –Bertao Lift



Eastside Canal—Concrete Lined and Pumping Plant



Pick Anderson 3-5 –Pumping Plant and Pipes



Poso Slough –Pumping Plant and Concrete Structure-Backup Weir



Poso Slough and Salt Slough—Pipes



Santa Rita Canal –Long Crested Weir

